

APPLICATION NOTE

# Five reasons to upgrade your hand-held oscilloscope



Electro-mechanical equipment is increasingly becoming more and more digital and more sophisticated. In 1997, Fluke launched the ScopeMeter® 120 Series Hand-Held Oscilloscope, which rapidly became the industry standard go-to tool for troubleshooting industrial electro-mechanical systems. Since then, automated machinery has become more efficient, more connected and less likely to break down. But, it's also harder to troubleshoot. It's not enough to know where to test, you also have to know what to look for. So with input from maintenance specialists who deal with a range of digital controls and industrial equipment, Fluke is introducing the new ScopeMeter 120B Series with a range of functions designed to simplify the testing process to help you troubleshoot faster and get the answers you need to keep your systems up and running. Here are reasons to upgrade:

## **1** Newer digital electro-mechanical equipment

Motors, pumps, turbines and other types of electro-mechanical equipment are more digitized and more complex than ever before. Programmable Logic Controllers (PLCs) can now be programmed in the field, and many of the newest control devices include networking capabilities. This adds another dimension to troubleshooting that allows input from external devices. Meanwhile, knowledge and training is shifting from analog to digital, creating demand for technology that includes intelligence to assist real-world working conditions. The Fluke 120B Series addresses modern realities with the wireless connectivity to a smartphone, new intelligent functionality to help in waveform analysis as well as color LCD.

## **2** Complexity of signals/waveforms

Programmable automated controllers (PACs), PLCs and other industrial digital control devices produce complex signals that are difficult to capture and trigger on an oscilloscope. Indeed, identifying characteristics of signals can be a challenge

and even more difficult to determine the root cause of a failure. The Fluke 120B Series Hand-Held Oscilloscopes provide capabilities that help troubleshooting teams diagnose potential issues and uncover root cause in a straightforward manner. Connect-and-View™ triggering automates signal setup, trigger and capture, while a new Fluke innovation called IntellaSet™ technology adds a sophisticated onboard algorithm that analyzes the measured waveform, then intelligently displays critical measurements values associated with that waveform. As an example, when the measured waveform is a line voltage signal, the V ac + dc and Hz readings are automatically displayed for a sine wave V ac and Hz are displayed, for a dc power source, dc volts, and for a square wave VPeak-Peak and Hz. This in turn provides a quicker path to troubleshooting. The ScopeMeter 125B can also help you successfully troubleshoot a range of industrial bus problems. The 125B can verify the electrical signal quality in AS-i, CAN, Foundation Fieldbus H1, Profibus and RS-232/485. With the Bus Health function, a user can provide a health check on a specific bus communication between the control unit and a motor drive, for example, immediately determining if the signal complies with the standards for the particular bus.



### **3** Difficulty capturing intermittent events

One of the most difficult faults to find and fix, intermittent events can be beyond frustrating, happening only once in a while. They can be caused by bad connections, dust, dirt, or simply broken wiring or connections, and can be particularly hard to find in digital signals involved in control systems. ScopeMeter 120B Series Hand-Held Oscilloscopes can record for long periods of time in memory. Plus, a new automatic Event Detect feature can quickly capture and identify random events that can cause system shutdowns or resets. Just set a threshold on a meter reading or scope trace, and deviations are tagged as events in the full recording but you no longer need to search through masses of data to track down intermittent events. Simply step from one tagged event to the next, all while still having access to the full data set. The 120B Series can take thousands of samples per minute. Other features to help identify intermittents include event tagging and event capture. You can even trend measurements in real time on the screen, and with the Fluke Connect® mobile app capabilities, save measurements to a smartphone and upload to the cloud for sharing or analysis.

### **4** Getting to root cause may require assistance

Given how difficult it can be to troubleshoot issues in the latest digitized controls for electro-mechanical equipment, getting to root cause may require additional brainpower from a colleague or manufacturer, or a more sophisticated analysis in software programs. The ScopeMeter 120B Series can communicate with smartphones as part of the Fluke Connect® platform of wireless test tools and software. Fluke Connect mobile app compatibility provides the ability to compare and contrast asset measurement data, communicate with subject matter experts and document test information. By being able to share and communicate, technicians can cut the time it takes to troubleshoot issues and return equipment to full operation.

### **5** Data storage and management can be a challenge

The Fluke ScopeMeter 120B Series Hand-Held Oscilloscopes are the first Fluke Connect-enabled, cloud-connected portable oscilloscopes. This connectivity opens up a new way of thinking about saving, storing and sharing your waveform and measurement data from the ScopeMeter Test Tool. In addition to opening up the potential of collecting important baseline data on normal operating conditions of electro-mechanical systems, data is stored securely in the cloud where it is always available and thus can be shared and managed. And, since measurement data can be associated with specific pieces equipment, there is no need to manually record in the field and then transcribe into an office computer. Such information can even be compared against other test instruments in the Fluke Connect family, including industrial infrared cameras, vibration meters and others.

**Fluke.** *Keeping your world up and running.®*

**Fluke Corporation**  
PO Box 9090, Everett, WA 98206 U.S.A.

**Fluke Europe B.V.**  
PO Box 1186, 5602 BD  
Eindhoven, The Netherlands

**For more information call:**  
In the U.S.A. (800) 443-5853 or  
Fax (425) 446-5116  
In Europe/M-East/Africa +31 (0) 40 2675 200 or  
Fax +31 (0) 40 2675 222  
In Canada (800)-36-FLUKE or  
Fax (905) 890-6866  
From other countries +1 (425) 446-5500 or  
Fax +1 (425) 446-5116  
Web access: <http://www.fluke.com>

©2015 Fluke Corporation.  
Specifications subject to change without notice.  
Printed in U.S.A. 11/2015 6006758a\_en

**Modification of this document is not permitted without written permission from Fluke Corporation.**